- 1. (Currently Amended) A method of making a an ester comprising:
- (a) contacting an olefin selected from the group consisting of ethylene, propylene, isoolefins, normal butenes, and C<sub>5</sub> to C<sub>18</sub> olefins with carbon monoxide and an acid composition comprising a, BF<sub>3</sub>·2ROH acid composition to form a product composition;
- (b) adding ROH to the product composition of (a); and
- (c) separating an <u>a</u> acid-product comprising BF<sub>3</sub>·2ROH <u>acid product</u> from the ester, wherein ROH is selected from methanol; n-propanol; n-butanol; <u>2-propanol</u>; 2-ethyl hexanol; isohexanol; isohexanol; isohexanol; isooctanol; isononanol; 3,5,5-trimethyl hexanol; isodecanol; isotridecanol; 1-octanol; 1-decanol; 1-decanol; 1-tetradecanol and mixtures thereof.
  - (Currently Amended) The method of claim 1 further comprising;
     (d) recycling a portion of the separated acid product to contact the olefin or other.
  - 3. (Previously Presented) The method of claim 1 wherein the olefin is an isoolefin.
  - 4. (Original) The method of claim 2 wherein the olefin is isobutene.
  - (Cancelled)
  - 6. (Cancelled)
- 7. (Currently Amended) The method of claim 1 wherein the olefin is contacted with carbon monoxide and <u>a</u> an acid composition comprising BF<sub>3</sub>2ROH <u>acid composition</u> at a temperature from about 60°C to about 200°C.
- 8. (Currently Amended) The method of claim 7 wherein the olefin is contacted with carbon monoxide and an acid composition comprising BF<sub>3</sub>2ROH at a said temperature is from about 110°C to about 160°C.

- 9. (Currently Amended) The method of claim 1 wherein the olefin is contacted with carbon monoxide and a an acid composition comprising BF<sub>3</sub>2ROH acid composition at a pressure from about 30 atm to about 200 atm.
- 10. (Currently Amended) The method of claim 9 wherein the olefin is contacted with carbon monoxide and a an acid composition comprising BF<sub>3</sub>2ROH acid composition at a said pressure is from about 110 atm to about 160 atm.
  - 11. (Cancelled)
  - 12. (Original) The method of claim 1 wherein ROH is methanol.
  - 13. (Cancelled)
  - 14. (Cancelled)
- 15. (Currently Amended) The method of claim 1 further comprising:

  (d) contacting the olefin with a hydrocarbon, wherein the hydrocarbon is selected from a saturated linear or branched hydrocarbon having at least six carbons.
- 16. (Currently Amended) The method of claim 1 further comprising:

  (d) adding a hydrocarbon to the product composition of (a), wherein the hydrocarbon is selected from a saturated linear or branched hydrocarbon having at least six carbons.
- 18. (Currently Amended) The method of claim 1 further comprising:

  (d) contacting the olefin with phosphoric acid.

- 19. (Currently Amended) The method of claim 1 wherein separating the acid product is separated by comprises-concentrating the acid product such that the molar ratio ROH:BF<sub>3</sub> in the concentrated acid product is from about 2:1 to about 4:1.
- 20. (Currently Amended) The method of claim 19 wherein the concentrated acid product comprises a said molar ratio of ROH:BF<sub>3</sub> is from about 2:1 to about 3:1.
- 21. (Currently Amended) The method of claim 1 wherein the acid composition eemprises has a molar ratio of ROH:BF<sub>3</sub> from about 1.6:1 to about 3: 1.
- 22. (Currently Amended) The method of claim 21 wherein the acid composition emprises a said molar ratio of ROH:BF<sub>3</sub> is from about 1.9:1 to about 3: 1.
- 23. (Currently Amended) The method of claim 1 where wherein the product composition contains less than 3% by weight carboxylic acid.
- 24. (Currently Amended) A method of making methyl pivalate comprising:

  contacting methyl-t-butylether with carbon monoxide and <u>a an acid composition</u>

  eomprising BF<sub>3</sub>·2CH<sub>3</sub>OH <u>acid composition</u> to form <u>a product composition comprising</u> methyl pivalate <u>product composition</u>;

adding methanol to the product composition; and

separating a an-acid product comprising BF<sub>3</sub>·2CH<sub>3</sub>OH acid product from the methyl pivalate.

25. (Currently Amended) The method of claim 24 wherein the methyl-t-butylether is contacted with carbon monoxide and <u>a an acid-composition comprising</u> BF<sub>3</sub>2CH<sub>3</sub>OH <u>acid composition</u> at a temperature of about 110°C to about 160°C.

- 26. (Currently Amended) The method of claim 24 wherein the methyl-t-butylether is contacted with carbon monoxide and <u>a an acid composition comprising</u> BF<sub>3</sub>2CH<sub>3</sub>OH <u>acid composition</u> at a pressure from about 30 atm to about 200 atm.
- 27. (Currently Amended) The method of claim 24 further comprising contacting the methyl-t-butylether with a hydrocarbon, wherein the hydrocarbon is selected from a saturated linear or branched hydrocarbon having at least six carbons.
- 28. (Currently Amended) The method of claim 24 further comprising contacting the product composition with a hydrocarbon, wherein the hydrocarbon is selected from a saturated linear or branched hydrocarbon having at least six carbons.
- 29. (Original) The method of claim 28 further comprising separating the hydrocarbon and the methanol from the methyl pivalate and directing a portion of the separated hydrocarbon and the separated methanol to a unit selected from the group consisting of a separation unit, a reaction unit, and a combination thereof.
- 30. (Original) The method of claim 24 further comprising contacting the methyl-t-butylether with phosphoric acid.
- 31. (Currently Amended) The method of claim 24 wherein separating the acid product emprises is separated by concentrating the acid product such that the molar ratio ROH:BF<sub>3</sub> in the acid product is from about 2:1 to about 4:1.
- 32. (Currently Amended) The method of claim 31 wherein the concentrated acid product comprises a said molar ratio of ROH:BF<sub>3</sub> is from about 2:1 to about 3:1.
- 33. (Currently Amended) The method of claim 24 wherein the acid composition eemprises has a molar ratio of ROH:BF<sub>3</sub> from about 1.6:1 to about 3: 1.
- 34. (Currently Amended) The method of claim 33 wherein the acid composition emprises a said molar ratio is of ROH:BF<sub>3</sub> from about 1.9:1 to about 3: 1.

- 35. (Original) The method of claim 24 wherein the product composition contains nonanoic methyl esters such that the molar ratio of methyl pivalate to nonanoic methyl esters is about 4 or greater.
  - 36. (Currently Amended) A method of making an ester comprising:
- (a) contacting an olefin selected from the group consisting of ethylene, propylene, isoolefins, normal butenes, and C<sub>5</sub> to C<sub>18</sub> olefins with carbon monoxide and an acid composition comprising a BF<sub>3</sub> ROH acid composition to form a product composition;
- (b) adding ROH to the product composition of (a); and
- (c) separating a an-acid product comprising BF<sub>3</sub>·ROH acid product from the ester, wherein ROH is selected from methanol; n-propanol; 2-propanol; n-butanol; 2-ethyl hexanol; isohexanol; isohexanol; isooctanol; isononanol; 3,5,5-trimethyl hexanol; isodecanol; isotridecanol; 1-octanol; 1-decanol; 1-dodecanol; 1-tetradecanol and mixtures thereof and wherein the molar equivalents of ROH in the BF<sub>3</sub> ROH, ranges from about 2 to about 4.
  - 37. (Currently Amended) A method of making a an ester comprising:
- (a) contacting an ether with carbon monoxide and an acid composition comprising a BF<sub>3</sub>·2ROH acid composition to form a product composition;
- (b) adding ROH to the product composition of (a); and
- (c) separating <u>a an acid product comprising</u> BF<sub>3</sub>·2ROH <u>acid product</u> from the ester, wherein ROH is selected from methanol; n-propanol; n-butanol; <u>2-propanol</u>; 2-ethyl hexanol; isohexanol; isohexanol; isooctanol; isooctanol; isononanol; 3,5,5-trimethyl hexanol; isodecanol; isotridecanol; 1-octanol; 1-decanol; 1-decanol; 1-tetradecanol and mixtures thereof.
- 38. (Currently Amended) The method of claim 37 further comprising:

  (d) recycling a portion of the separated acid product to contact the ether.
- 39. (Previously Presented) The method of claim 37 wherein the ether is represented by the formula R'-O-R", wherein R' = saturated  $C_1$   $C_{13}$  alkyl and R" = saturated  $C_1$   $C_{13}$  alkyl, and R' and R" can be the same or different.

- 40. (Previously Presented) The method of claim 37 wherein the ether is methyl-t-butylether.
- 41. (Currently Amended) The method of claim 37 wherein the ether is contacted with carbon monoxide and <u>a an acid composition comprising</u> BF<sub>3</sub>2ROH <u>acid composition</u> at a temperature from about 60°C to about 200°C.
- 42. (Currently Amended) The method of claim 37 41 wherein the ether is contacted with carbon monoxide and an acid composition comprising BF<sub>3</sub>2ROH at a said temperature is from about 110°C to about 160°C.
- 43. (Currently Amended) The method of claim 37 wherein the ether is contacted with carbon monoxide and a an acid composition comprising BF<sub>3</sub>2ROH acid composition at a pressure from about 30 atm to about 200 atm.
  - 44. (Currently Amended) The method of claim 37 43 wherein the other is contacted with carbon monoxide and an acid composition comprising BF<sub>3</sub>2ROH at a said pressure is from about 110 atm<sup>6</sup>C to about 160 atm<sup>6</sup>C.
    - 45. (Cancelled)
    - 46. (Previously Presented) The method of claim 37 wherein ROH is methanol.
  - 47. (Previously Presented) The method of claim 37 wherein the ether is methyl-t-butyl ether.
  - 48. (Previously Presented) The method of claim 37 wherein the ether is diisopropyl ether and ROH is 2-propanol.

- 50. (Currently Amended) The method of claim 37 further comprising:

  (d) adding a hydrocarbon to the product composition of (a), wherein the hydrocarbon is selected from a saturated linear or branched hydrocarbon having at least six carbons.
- 52. (Currently Amended) The method of claim 37 further comprising:

  (d) contacting the olefin or ether with phosphoric acid.
- 53. (Currently Amended) The method of claim 37 wherein separating the acid product emprises is separated by concentrating the acid product such that the molar ratio ROH:BF<sub>3</sub> in the concentrated acid product is from about 2:1 to about 4:1.
- 54. (Currently Amended) The method of claim 53 wherein the concentrated acid product comprises a said molar ratio of ROH:BF<sub>3</sub> is from about 2:1 to about 3:1.
- 55. (Currently Amended) The method of claim 37 wherein the acid composition emprises has a molar ratio of ROH:BF<sub>3</sub> from about 1.6:1 to about 3: 1.
- 56. (Currently Amended) The method of claim 55 wherein the acid-composition emprises a said molar ratio of ROH:BF<sub>3</sub> is from about 1.9:1 to about 3: 1.
- 57. (Currently Amended) The method of claim 37 where wherein the product composition contains less than 3% by weight carboxylic acid.

- 58. (Currently Amended) A method of making an ester comprising:
- (a) contacting an ether with carbon monoxide and an-acid composition comprising a BF<sub>3</sub> ROH acid composition to form a product composition;
- (b) adding ROH to the product composition of (a); and
- (c) separating a an acid product comprising BF<sub>3</sub>·ROH acid product from the ester, wherein ROH is selected from methanol; n-propanol; n-butanol; 2-butanol; 2-ethyl hexanol; isohexanol; isohexanol; isohexanol; isooctanol; isononanol; 3,5,5-trimethyl hexanol; isodecanol; isotridecanol; 1-octanol; 1-dodecanol; 1-tetradecanol and mixtures thereof and wherein the molar equivalents of ROH in the BF<sub>3</sub> ROH, ranges from about 2 to about 4.